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[Claims]

[Claim 1]

A television broadcast multiplex data printing  
5 method of receiving a transmitted television  
broadcast signal and print-related data multiplexed  
therewith by a television broadcast receiving unit,  
analyzing the print-related data, displaying  
information indicating presence of print-object data  
10 on a television monitor based on a result of the  
analysis, and printing the print-object data with a  
printer in response to a print instruction from a  
user,

characterized in that the television broadcast  
15 receiving unit separates the television broadcast  
signal and the print-related data transmitted in  
multiplex form, detects whether a printer is  
connected, then, upon detecting that the printer is  
connected, analyzes the print-related data to obtain  
20 information indicating the presence of the print-  
object data and the print-object data, synthesizes  
the information indicating the presence of the print-  
object data with the television broadcast signal for  
output to the television monitor, and, in response to  
25 a print instruction from the user, outputs the print-  
object data to the printer.

[Claim 2]

A television broadcast multiplex data printing method of receiving a transmitted television broadcast signal and print-related data multiplexed therewith by a television broadcast receiving unit,  
5 analyzing the print-related data, displaying information indicating presence of print-object data on a television monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a  
10 user,

characterized in that the television broadcast receiving unit separates the television broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data  
15 to the printer, and that the printer analyzes the print-related data transferred from the television broadcast receiving unit to obtain information indicating the presence of the print-object data and the print-object data, synthesizes the information  
20 indicating the presence of the print-object data with the television broadcast signal for output to the television monitor, and, in response to a print instruction from the user, executes a printing process on the print-object data.

25 [Claim 3]

A television broadcast multiplex data printing system for receiving a transmitted television

broadcast signal and print-related data multiplexed  
therewith by a television broadcast receiving unit,  
analyzing the print-related data, displaying  
information indicating presence of print-object data  
5 on a television monitor based on a result of the  
analysis, and printing the print-object data with a  
printer in response to a print instruction from a  
user,

characterized in that the television broadcast  
10 receiving unit includes:

a demultiplexing unit for separating the  
television broadcast signal and the print-related  
data transmitted in multiplex form,

a printer connection detecting unit for  
15 detecting whether a printer is connected,

a print instruction receiving unit for  
accepting a print instruction from a user,

a print data analyzing unit for analyzing, upon  
recognizing the connection of the printer based on  
20 result of detection by the printer connection  
detecting unit, the print-related data to obtain  
information indicating the presence of the print-  
object data and the print-object data,

a synthesizing unit for synthesizing the  
25 information indicating the presence of the print-  
object data, obtained by the print data analyzing  
unit, with the television broadcast signal, obtained

in the demultiplexing unit,

an image output unit for outputting image data from the synthesizing unit to a television monitor, and

5 a printer control unit for executing a print control on the printer upon receiving the print-object data from the print data analyzing unit.

[Claim 4]

A television broadcast multiplex data printing  
10 system for receiving a transmitted television broadcast signal and print-related data multiplexed therewith by a television broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data  
15 on a television monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user,

characterized in that the television broadcast  
20 receiving unit at least includes a demultiplexing unit for separating the television broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data, separated in the demultiplexing unit to a printer, and

25 the printer includes:

a print instruction receiving unit for accepting a print instruction from a user,

a print data analyzing unit for analyzing the print-related data, transferred by the television broadcast receiving unit, to obtain information indicating the presence of print-object data and the  
5 print-object data,

a synthesizing unit for synthesizing the information indicating the presence of the print-object data, obtained by the print data analyzing unit, with the television broadcast signal, obtained  
10 in the demultiplexing unit,

an image output unit for outputting image data from the synthesizing unit to a television monitor, and

a printer control unit for executing a print  
15 control on the printer upon receiving the print-object data from the print data analyzing unit.

[Claim 5]

A recording medium storing a television broadcast multiplex data printing program for  
20 receiving a transmitted television broadcast signal and print-related data multiplexed therewith by a television broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a television monitor  
25 based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user,

the television broadcast multiplex data  
printing program being characterized by including, in  
the television broadcast receiving unit,

a procedure of separating the television  
5 broadcast signal and the print-related data  
transmitted in multiplex form, upon reception thereof,

a procedure of detecting whether a printer is  
connected, and, upon recognizing the connection of  
the printer, analyzing the print-related data to  
10 obtain information indicating the presence of the  
print-object data and the print-object data,

a procedure of synthesizing thus obtained  
information indicating the presence of the print-  
object data with the television broadcast signal, and  
15 executing an output to a television monitor, and

a procedure of outputting the print-object data  
to the printer upon receiving a print instruction  
from a user.

[Claim 6]

20 A recording medium storing a television  
broadcast multiplex data printing program for  
receiving a transmitted television broadcast signal  
and print-related data multiplexed therewith by a  
television broadcast receiving unit, analyzing the  
25 print-related data, displaying information indicating  
presence of print-object data on a television monitor  
based on a result of the analysis, and printing the

print-object data with a printer in response to a  
print instruction from a user,

the television broadcast multiplex data  
printing program being characterized by including, in  
5 the television broadcast receiving unit,

a procedure of separating the television  
broadcast signal and the print-related data  
transmitted in multiplex form, upon reception thereof,  
and outputting the print-related data to the printer,  
10 and,

in the printer,

a procedure of analyzing the print-related data  
to obtain information indicating the presence of the  
print-object data and the print-object data,

15 a procedure of synthesizing thus obtained  
information indicating the presence of the print-  
object data with the television broadcast signal, and  
executing an output to a television monitor, and

a procedure of printing the print-object data  
20 upon receiving a print instruction from a user.

[Detailed Description of the Invention]

[0001]

[Technical Field to which the Invention Belongs]

The present invention relates to a television  
25 broadcast multiplex data printing method and system  
for enabling printing of data multiplexed with a  
television broadcast signal, and a recording medium

storing a television broadcast multiplex data  
printing program.

[0002]

[Prior Technology]

5           There is already proposed a system of  
multiplexing various data with a broadcast electric  
wave (satellite broadcast wave or ground wave) of  
television (hereinafter represented as TV) and  
transmitting it to a TV system of viewer side and  
10 printing data required by the viewer (called user) by  
a printer connected to TV. A specific example is to  
display a merchandise on the TV screen and printing  
corresponding data (such as catalog content showing  
details of the merchandise).

15 [0003]

For example, in the aforementioned example of  
printing data relating to any merchandise, such  
merchandise is displayed on the TV screen and  
information indicating presence of print-object data  
20 relating to the merchandise is also displayed, and  
the user, viewing such display and if requiring  
detailed data, inputs a print instruction. Thus  
detailed data concerning the merchandise are printed  
out.

25 [0004]

[Problems the Invention is to Solve]

However, not all the users have a printer



connected to the TV system. For a user without a  
connected printer, a display indicating the presence  
of print data, given every time, is felt rather  
annoying, and the display indicating the presence of  
5 print data, given too frequently, may be felt  
unpleasant to many users. Also it may be considered  
to implicitly request the purchase of a printer to  
the users having no the printer and is therefore not  
desirable.

10 [0005]

In order to cope with such situation, it is  
conceivable, at the emission source of the TV  
broadcast wave, to recognize the system status  
(presence/absence of printer etc.) of the user and to  
15 prepare and transmit a corresponding content of  
broadcasting, but the preparation of broadcast  
content based on all the system configurations of  
unspecified plural users is extremely unrealistic in  
consideration of the cost.

20 [0006]

Therefore, an object of the present invention  
is to judge presence/absence of the printer in the TV  
system of the user, and, only in case a printer is  
connected, to display the presence of print-object  
25 data on the TV monitor and to enable reception of a  
print instructing input from the user.

[0007]

[Means for Solving the Problems]

For attaining the aforementioned object, a TV broadcast multiplex data printing method described in claim 1, of receiving a transmitted TV broadcast  
5 signal and print-related data multiplexed therewith by a TV broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a TV monitor based on a result of the analysis, and printing the print-  
10 object data with a printer in response to a print instruction from a user, is characterized in that the TV broadcast receiving unit separates the TV broadcast signal and the print-related data transmitted in multiplex form, also detects whether a  
15 printer is connected, then, upon detecting that the printer is connected, analyzes the print-related data to obtain information indicating the presence of the print-object data and the print-object data, synthesizes the information indicating the presence  
20 of the print-object data with the TV broadcast signal for output to the TV monitor, and, in response to a print instruction from the user, outputs the print-object data to the printer.

[0008]

25 Also a TV broadcast multiplex data printing method described in claim 2, of receiving a transmitted TV broadcast signal and print-related

data multiplexed therewith by a TV broadcast  
receiving unit, analyzing the print-related data,  
displaying information indicating presence of print-  
object data on a TV monitor based on a result of the  
5 analysis, and printing the print-object data with a  
printer in response to a print instruction from a  
user, is characterized in that the TV broadcast  
receiving unit separates the TV broadcast signal and  
the print-related data transmitted in multiplex form,  
10 and transfers the print-related data to the printer,  
and that the printer analyzes the print-related data  
transferred from the TV broadcast receiving unit to  
obtain information indicating the presence of the  
print-object data and the print-object data,  
15 synthesizes the information indicating the presence  
of the print-object data with the TV broadcast signal  
for output to the TV monitor, and, in response to a  
print instruction from the user, executes a printing  
process on the print-object data.

20 [0009]

Also a TV broadcast multiplex data printing  
system described in claim 3, for receiving a  
transmitted TV broadcast signal and print-related  
data multiplexed therewith by a TV broadcast  
25 receiving unit, analyzing the print-related data,  
displaying information indicating presence of print-  
object data on a TV monitor based on a result of the

analysis, and printing the print-object data with a  
printer in response to a print instruction from a  
user, is characterized in that the TV broadcast  
receiving unit includes a demultiplexing unit for  
5 separating the TV broadcast signal and the print-  
related data transmitted in multiplex form, a printer  
connection detecting unit for detecting whether a  
printer is connected, a print instruction receiving  
unit for accepting a print instruction from a user, a  
10 print data analyzing unit for analyzing, upon  
recognizing the connection of the printer based on  
result of detection by the printer connection  
detecting unit, the print-related data to obtain  
information indicating the presence of the print-  
15 object data and the print-object data, a synthesizing  
unit for synthesizing the information indicating the  
presence of the print-object data, obtained by the  
print data analyzing unit, with the TV broadcast  
signal, obtained in the demultiplexing unit, an image  
20 output unit for outputting image data from the  
synthesizing unit to a TV monitor, and a printer  
control unit for executing a print control on the  
printer upon receiving the print-object data from the  
print data analyzing unit.

25 [0010]

Also a TV broadcast multiplex data printing  
system described in claim 4, for receiving a

transmitted TV broadcast signal and print-related data multiplexed therewith by a TV broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a TV monitor based on a result of the analysis, and printing the print-object data with a printer in response to a print instruction from a user, is characterized in that the TV broadcast receiving unit at least includes a demultiplexing unit for separating the TV broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data, separated in the demultiplexing unit to a printer, and that the printer includes a print instruction receiving unit for accepting a print instruction from a user, a print data analyzing unit for analyzing the print-related data, transferred by the TV broadcast receiving unit, to obtain information indicating the presence of print-object data and the print-object data, a synthesizing unit for synthesizing the information indicating the presence of the print-object data, obtained by the print data analyzing unit, with the TV broadcast signal, obtained in the demultiplexing unit, an image output unit for outputting image data from the synthesizing unit to a TV monitor, and a printer control unit for executing a print control on the printer upon receiving the

print-object data from the print data analyzing unit.  
[0011]

Also a recording medium storing a TV broadcast multiplex data printing program described in claim 5,  
5 for receiving a transmitted TV broadcast signal and print-related data multiplexed therewith by a TV broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a TV monitor based on a result  
10 of the analysis, and printing the print-object data with a printer in response to a print instruction from a user, is characterized in that the TV broadcast multiplex data printing program includes, in the TV broadcast receiving unit, a procedure of  
15 separating the TV broadcast signal and the print-related data transmitted in multiplex form, upon reception thereof, a procedure of detecting whether a printer is connected, and, upon recognizing the connection of the printer, analyzing the print-  
20 related data to obtain information indicating the presence of the print-object data and the print-object data, a procedure of synthesizing thus obtained information indicating the presence of the print-object data with the TV broadcast signal, and  
25 executing an output to a TV monitor, and a procedure of outputting the print-object data to the printer upon receiving a print instruction from a user.

[0012]

Also a recording medium storing a TV broadcast multiplex data printing program described in claim 6, for receiving a transmitted TV broadcast signal and  
5 print-related data multiplexed therewith by a TV broadcast receiving unit, analyzing the print-related data, displaying information indicating presence of print-object data on a TV monitor based on a result of the analysis, and printing the print-object data  
10 with a printer in response to a print instruction from a user, is characterized in that the TV broadcast multiplex data printing program includes, in the television broadcast receiving unit, a procedure of separating the TV broadcast signal and  
15 the print-related data transmitted in multiplex form, upon reception thereof, and outputting the print-related data to the printer, and that, in the printer, a procedure of analyzing the print-related data to obtain information indicating the presence of the  
20 print-object data and the print-object data, a procedure of synthesizing thus obtained information indicating the presence of the print-object data with the TV broadcast signal, and executing an output to a TV monitor, and a procedure of printing the print-  
25 object data upon receiving a print instruction from a user.

[0013]

Thus, according to the present invention, the TV broadcast receiving unit detects whether a printer is connected, then, only in case of detecting that the printer is connected, synthesizes the information  
5 indicating the presence of the print-object data with the TV broadcast signal for output to the TV monitor, and, in response to a print instruction from the user, outputs the print-object data to the printer, whereby the information indicating the presence of the print  
10 data is not at all displayed in the TV monitor of the viewer whose printer is not connected, and the viewer therefore need not look at the annoying display indicating the presence of the print data.

[0014]

15 Also the TV broadcast receiving unit separates the TV broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data to the printer, which is provided with functions of analyzing the print-related data  
20 transferred from the TV broadcast receiving unit to obtain information indicating the presence of the print-object data and the print-object data, synthesizing the information indicating the presence of the print-object data with the TV broadcast signal  
25 for output to the TV monitor, and, in response to a print instruction from the user, executing a printing process on the print-object data, so that the



information indicating the presence of the print-object data can be displayed on the monitor only in case of a printer connection, whereby the information indicating the presence of the print data is not at  
5 all displayed in the TV monitor of the viewer whose printer is not connected, and the viewer therefore needs not look at the annoying display indicating the presence of the print data.

[0015]

10 In this manner, the present invention inhibits, on a TV monitor of a user having no a printer, a printing-related image display which is irrelevant to such user, thereby relieving the user from an unpleasant feeling caused by frequent irrelevant  
15 image displays. Besides, since such process can be executed at the TV system of the user, it is unnecessary, at the emission source of the TV broadcast wave, to execute a cumbersome process such as recognizing the system status (presence/absence of  
20 printer etc.) of the user and preparing and transmitting a corresponding content of broadcasting.

[0016]

{Embodiments of the Invention}

In the following, embodiments of the present  
25 invention will be explained. The embodiments assume a case of advertising a certain merchandise by TV, wherein the merchandise to be advertised is

introduced by image data and audio data of a TV  
broadcast signal and print-related data corresponding  
to the merchandise is transmitted by multiplexing  
with such TV broadcast signal. The print-related  
5 data is constituted of detailed information on the  
merchandise (called print-object data) and  
information indicating the presence of the print-  
object data, and the print-object data can include  
not only character information indicating a price, a  
10 quality, a function and the like but also graphic  
information, and can be, for example, a merchandise  
catalog.

[0017] (First embodiment)

Fig. 1 shows a system configuration for  
15 explaining a first embodiment of the present  
invention, principally constituted of a TV monitor 1  
and a TV broadcast receiving unit 2.

[0018]

The TV broadcast receiving unit 2 includes a  
20 tuner unit 20 for selecting a frequency or a channel  
of the TV broadcast wave, a demultiplexing unit 21  
for separating the television broadcast signal  
(constituted of the image data and the audio data)  
and the print-related data multiplexed therewith, an  
25 audio output unit 22 for outputting the audio data  
separated by the demultiplexing unit 21, a printer  
connection detecting unit 23 for detecting whether a

printer 3 is connected, a print instruction receiving unit 24 for accepting a print instruction from a user, a print data analyzing unit 25 for checking the state of the printer connection detecting unit 23, and, upon recognizing the connection of the printer, and analyzing the print-related data to obtain information indicating the presence of the print-object data and the print-object data, an image synthesizing unit 26 for synthesizing the information indicating the presence of the print-object data, obtained by the print data analyzing unit 25, with the image data, obtained in the demultiplexing unit 22, an image output unit 27 for outputting the image data from the image synthesizing unit 26 to the TV monitor 1, and a printer control unit 28 for activating the printer 3 and executing a print control upon receiving the print-object data from the print data analyzing unit 25.

[0019]

A specific example will be explained in such configuration. As explained above, there is assumed a case of advertising a certain merchandise utilizing the TV broadcast. Now, by the image data and the audio data of the TV broadcast signal, an image of the merchandise to be advertised is displayed on the TV monitor 1, and an explanation on the merchandise is given by the audio signal. At the same time,

print-related data multiplexed with these TV broadcast signals are supplied to the print data analyzing unit 25.

[0020]

5           In this state, the print data analyzing unit 25 checks the state of the printer connection detecting unit 23, and judges whether the printer 3 is connected. If the printer 3 is connected, it recognizes such state and analyzes the print-related  
10 data separated by the demultiplexing unit 21. The print-related data are described by a language based on HTML (hyper text markup language) as shown in Fig. 2.

[0021]

15           Referring to Fig. 2, a portion positioned between a tag <print\_system> and a tag </print\_system> is a portion to be processed. The portion positioned between the tag <print\_system> and the tag </print\_system> is processed only when the  
20 printer 3 is connected, and the image data analyzing unit 25, upon recognizing that the printer 3 is connected, transfers the portion positioned between the tag <print\_system> and the tag </print\_system>, namely 'Press "Print", the catalog will be printed  
25 out', to the image synthesizing unit 26. The image synthesizing unit 26 synthesizes this text 'Press "Print", the catalog will be printed out' with the

image data of the TV broadcast signal separated by the demultiplexing unit 21. Thus synthesized image data are displayed by the image output unit 27 on the TV monitor 1.

5 [0022]

Fig. 3 shows a content displayed on the TV monitor 1. In the example shown in Fig. 3, there are shown an image of the merchandise 11 to be advertised, and information 12 indicating the presence of print-object data for such merchandise 11, such as 'Press  
10 "Print", the catalog will be printed out'.

[0023]

The user looks at the information 12 indicating the presence of the print-object data, and, in case  
15 of wishing detailed information, enters a print instructing request. Thus the print instruction receiving unit 24 receives the print instructing request from the user and informs it to the print data analyzing unit 25. The print data analyzing  
20 unit 25 recognizes the print instructing request from the user and transfers the print-object data to the printer control unit 28.

[0024]

The print-object data are a portion positioned  
25 between a tag <print\_document> and a tag </print\_document> in Fig. 2, namely 'Press "Print", the catalog will be printed out', having a content

such as "Fashion Catalog" or "Discount price is \$300".  
The print-object data are basically more detailed  
information similar to a merchandise catalog  
including various information such as, in case the  
5 merchandise is a clothing, a fabric quality, a size  
type and a color type, but here is shown a simplified  
content for the purpose of simplicity.

[0025]

Such print-object data are transferred, by the  
10 print data analyzing unit 25, to the printer control  
unit 28, which controls the printer 3 to initiate the  
printing. Thus the printer 3 prints out information  
such as "Fashion Catalog" or "Discount price is \$300".

[0026]

15 Fig. 4 is a flow chart showing a process  
sequence of the first embodiment. Further  
explanation will be given with reference to this flow  
chart, though the explanation in the foregoing may be  
duplicated in many units. At first the tuner unit 20  
20 selects a desired channel (step s1). Then the  
demultiplexing unit 21 separates the image data, the  
audio data and the print-related data (step s2). The  
image data thus separated are supplied to the image  
synthesizing unit 26, the audio data to the audio  
25 output unit 22, and the print-related data to the  
print data analyzing unit 25.

[0027]

Then the print data analyzing unit 25 checks the state of the printer connection detecting unit 23, and judges whether the printer 3 is connected (step s3). If the printer 3 is connected (step s4), the  
5 print data analyzing unit 25 analyzes the print-related data (step s5) and judges whether the print-related data have been received (step s6). If the print-related data have been received, information indicating the presence of the print-object data,  
10 such as 'Press "Print", the catalog will be printed out', explained above is transferred to the image synthesizing unit 26 (step s7).

[0028]

The image synthesizing unit 26 synthesizes such  
15 content with the image data of the TV broadcast signal and sends the result to the image output unit 27 (step s8).

[0029]

Then the print instruction receiving unit 24  
20 discriminates whether a print instructing request has been received from the user (step s9), and, having received a print instructing request, sends a print instruction to the print data analyzing unit 25 (step s10). In response, the print data analyzing unit 25  
25 transfers the print-object data to the printer control unit 28 (step s11), which controls the printer 3 to initiate a printing (step s12).

[0030]

In this manner, the information indicating the presence of the print-object data is displayed on the TV monitor 1 only in case a printer is connected to the TV system of the user, and, when the user  
5 observing such information enters a print instructing request, the print-object data are printed out from the printer 3.

[0031]

10 Therefore the TV monitor 1 of the user without a connected printer does not display the information indicating the presence of the print-object data, but displays the original TV broadcast only. In this example, there are merely given an image display of  
15 the merchandise 11 on the TV monitor 1 and an audio explanation, but the information indicating the presence of the print-object data is not displayed.

[0032]

More specifically, in case the printer 3 is not  
20 connected, the printer connection detecting unit 23 detects that the printer 3 is not connected and the print data analyzing unit 25 recognizes such situation and, upon receiving the print-related data separated by the demultiplexing unit 21, does not  
25 execute the aforementioned process (process from step s5 to step s12) on the print-related data.

[0033]



Therefore, as the TV monitor of the user having no the connected printer 3 does not display the information indicating the presence of the print-object data, the user having no the connected printer  
5 3 need not look at, every time, the annoying display indicating the presence of the print-object data, thereby being relieved from the unpleasant feeling cause by the display rather irrelevant to the user having no the connected printer.

10 [0034]

Besides, since such process can be executed at the TV system of the user, it is unnecessary for the TV broadcast wave source side to execute a cumbersome process such as recognizing the system status  
15 (presence/absence of printer etc.) of many users and preparing and transmitting a corresponding content of broadcasting.

[0035]

In the first embodiment, the TV broadcast  
20 receiving unit 2 may be integrated with the TV monitor 1 or may be constructed as an equipment generally called STB (set box) or IRD (integrated receiver decoder), separate from the TV apparatus.

[0036] (Second embodiment)

25 The second embodiment shows an example in which the reception data analyzing unit, the image synthesis unit, the image output unit and the print

instruction receiving unit explained above are provided in the printer 3.

[0037]

Fig. 5 shows a system configuration for explaining a second embodiment of the present invention, principally constituted of a TV monitor 1, a TV broadcast receiving unit 2, and a printer 3, and, in this case, the TV broadcast receiving unit 2 includes at least a tuner unit 20, a demultiplexing unit 21 and an audio output unit 22 explained before. The TV broadcast receiving unit 2 may be integrated with the TV monitor 1 or formed separately from the TV apparatus, as in the first embodiment.

[0038]

The printer 3 includes an image data input unit 30 for entering image data separated by the demultiplexing unit 21, a print data input unit 31 for entering print-related data separated likewise by the demultiplexing unit 21, a print instruction receiving unit 32 for accepting a print instruction from a user, a print data analyzing unit 33 for analyzing the print-related data, transferred from the TV broadcast receiving unit 2 through the print data receiving unit 31, to obtain information indicating the presence of the print-object data and the print-object data, an image synthesizing unit 34 for synthesizing the information indicating the

presence of the print-object data, obtained by the  
print data analyzing unit 33, with the image data,  
separated in the demultiplexing unit 22, an image  
output unit 35 for outputting the image data from the  
5 image synthesizing unit 34 to the TV monitor 1, a  
print control unit 36 for executing a print process  
in response to the print-object data from the print  
data analyzing unit 33, a sheet feeding tray 37, a  
sheet discharge tray 38 and the like. Besides these  
10 components, various components are present for  
attaining the function of a printer, but those not  
directly relevant for explaining the present  
invention will be omitted from the explanation.

[0039]

15 A specific example will be explained in such  
configuration. At first, the printer 3 of such  
configuration is connected as one of the TV system of  
the user. In this case, the connections are made, as  
shown in Fig. 5, in such a manner that the image data  
20 separated by the TV broadcast receiving unit 2 is  
supplied to the image data input unit 30, that the  
print-related data are supplied to the print data  
input unit 31, and that the image signal from the  
image output unit 35 of the printer 3 is outputted to  
25 the TV monitor 1.

[0040]

As in the above-described first embodiment,

there will be explained a case of advertising a certain merchandise utilizing the TV broadcast. Now, by the image data and the audio data of the TV broadcast signal, an image of the merchandise to be  
5 advertised is displayed on the TV monitor 1, and an explanation on the merchandise is given by the audio signal. At the same time, print-related data multiplexed with these TV broadcast signals are separated by the demultiplexing unit 21 of the TV  
10 broadcast receiving unit 2, and supplied to the print data analyzing unit 33 through the print data input unit 31.

[0041]

The print data analyzing unit 33 analyzes the  
15 supplied print-related data. The print-related data are described for example by a language based on HTML as shown in Fig. 2.

[0042]

Referring to Fig. 2, a portion positioned  
20 between a tag <print\_system> and a tag </print\_system> is a portion to be processed. The image data analyzing unit 33 transfers, as the information indicating the presence of the print-object data, the portion positioned between the tag  
25 <print\_system> and the tag </print\_system>, namely 'Press "Print", the catalog will be printed out', to the image synthesizing unit 34. The image

synthesizing unit 34 synthesizes this text 'Press  
"Print", the catalog will be printed out' with the  
image data of the TV broadcast signal separated in  
the TV broadcast receiving unit 2. Thus synthesized  
5 image data are supplied by the image output unit 35  
to the TV monitor 1 and displayed thereon.  
[0043]

Fig. 3 shows a content displayed on the TV  
monitor 1. In the example shown in Fig. 3, there are  
10 shown an image of the merchandise 11 to be advertised,  
and information 12 indicating the presence of print-  
object data for such merchandise 11 ('Press "Print",  
the catalog will be printed out').  
[0044]

15 The user looks at the information 12 indicating  
the presence of the print-object data, and, in case  
of wishing detailed information, enters a print  
instructing request. Thus the print instructing  
receiving unit 32 receives the print instructing  
20 request from the user and informs it to the print  
data analyzing unit 33. The print data analyzing  
unit 33 recognizes the print instructing request from  
the user and transfers the print-object data to the  
printer control unit 36. The print-object data is  
25 a portion positioned between a tag <print\_document>  
and a tag </print\_document> in Fig. 2, namely 'Press  
"Print", the catalog will be printed out', having a

content such as "Fashion Catalog" or "Discount price is \$300".

[0045]

The print process unit 36 executes a print  
5 process on a printing sheet fed from the sheet  
feeding tray 37, and then discharges the sheet to the  
sheet discharge tray 38.

[0046]

Fig. 6 is a flow chart showing a process  
10 sequence of the second embodiment. Further  
explanation will be given with reference to this flow  
chart, though the explanation in the foregoing may be  
duplicated in many units. At first the TV broadcast  
receiving unit 2 selects a desired channel (step s21).  
15 Then the demultiplexing unit 21 separates the image  
data, the audio data and the print-related data (step  
s22). The image data thus separated are supplied to  
the image synthesizing unit 34 through the image data  
input unit 30, the audio data to the audio output  
20 unit 22, and the print-related data to the print data  
analyzing unit 33 through the print data input unit  
31.

[0047]

Then the print data analyzing unit 33 analyzes  
25 the print-related data (step s23) and judges whether  
the print-related data have been received (step s24).  
If the print-related data have been received,

information indicating the presence of the print-object data, such as 'Press "Print", the catalog will be printed out', explained above is transferred to the image synthesizing unit 34 (step s25).

5 [0048]

The image synthesizing unit 34 synthesizes such content with the image data of the TV broadcast signal and sends the result to the image output unit 35 (step s26).

10 [0049]

Then the print instruction receiving unit 32 discriminates whether a print instructing request has been received from the user (step s27), and, having received a print instructing request, sends a print instruction to the print data analyzing unit 33 (step s28). In response, the print data analyzing unit 33 transfers the print-object data to the printer control unit 36 (step s29), which controls the printer 3 to initiate a printing (step s30).

20 [0050]

The above-described process is executed only in case a printer is connected to the TV system of the user. Thus, only in case the printer 3 of the second embodiment is connected, the information indicating the presence of the print-object data is displayed on the TV monitor 1, and, when the user observing such information enters a print instructing request, the

print-object data are printed out from the printer 3.

[0051]

Therefore the TV monitor 1 of the user without  
a connected printer does not display the information  
5 indicating the presence of the print-object data, but  
displays the original TV broadcast only. In this  
example, there are merely given an image display of  
the merchandise 11 on the TV monitor 1 and an audio  
explanation, but the information indicating the  
10 presence of the print-object data is not displayed.

[0052]

More specifically, in case the printer 3 is not  
connected, the aforementioned process (process from  
step s23 to step s30) is not executed on the print-  
15 related data separated by the demultiplexing unit 21.

[0053]

Therefore, as the TV monitor of the user having  
no the connected printer 3 does not display the  
information indicating the presence of the print-  
20 object data, the user without the connected printer 3  
need not look at, every time, the annoying display  
indicating the presence of the print-object data,  
thereby being relieved from the unpleasant feeling  
cause by the display rather irrelevant to the user  
25 without the connected printer.

[0054]

Besides, since such process can be executed at



the TV system of the user, it is unnecessary for the TV broadcast wave source side to execute a cumbersome process such as recognizing the system status (presence/absence of printer etc.) of many users and  
5 preparing and transmitting a corresponding content of broadcasting.

[0055]

In the first and second embodiments explained above, it is also important how the print data  
10 analyzing unit 25 (print data analyzing unit 33 in the second embodiment) can recognize an effective term of the portion positioned between the tags <print\_system> and </print\_system> in the print-related data. This is because the TV broadcast  
15 varies time-sequentially, and the print-related data have to be constructed correspondingly.

[0056]

This can be resolved by describing, in the print-related data, a tag <print\_system\_cancel> and a  
20 tag </print\_system\_cancel> in synchronization with the content of the TV broadcast. Thus, the print data analyzing unit 25 (print data analyzing unit 33 in the second embodiment), upon receiving the tag <print\_system\_cancel> and a tag  
25 </print\_system\_cancel>, invalidates print-related data received time-sequentially earlier.

[0057]

Also the portion between the tag  
<print\_document> and the tag </print\_document> may be  
described with a URL (uniform resource locator). In  
such case, it is possible by providing the TV system  
5 of the user with means capable of access to a web  
server, to fetch and print the print data.  
[0058]

The present invention is not limited to the  
foregoing embodiments, but is subject to various  
10 modifications within an extent not exceeding the  
scope of the present invention. Also a process  
program for executing the process of the invention  
explained in the foregoing may be stored in a  
recording medium such as a floppy disk, an optical  
15 disk or a hard disk, and the present invention also  
includes such recording medium. Also the process  
program may be obtained from a network.  
[0059]

[Effect of the Invention]

20 Thus, according to the present invention, the  
TV broadcast receiving unit detects whether a printer  
is connected, then, only in case of detecting that  
the printer is connected, synthesizes the information  
indicating the presence of the print-object data with  
25 the TV broadcast signal for output to the TV monitor,  
and, in response to a print instruction from the user,  
outputs the print-object data to the printer, whereby

the information indicating the presence of the print data is not at all displayed in the TV monitor of the observer without the printer connection, who therefore need not look at the annoying display  
5 indicating the presence of the print data, and the user without the printer connection is relieved from an unpleasant feeling caused by rather irrelevant image displays.

[0060]

10       Also the TV broadcast receiving unit separates the TV broadcast signal and the print-related data transmitted in multiplex form, and transfers the print-related data to the printer, which is provided with functions of analyzing the print-related data  
15 transferred from the TV broadcast receiving unit to obtain information indicating the presence of the print-object data and the print-object data, synthesizing the information indicating the presence of the print-object data with the TV broadcast signal  
20 for output to the TV monitor, and, in response to a print instruction from the user, executing a printing process on the print-object data, so that the information indicating the presence of the print-object data can be displayed on the monitor only by a  
25 printer connection, whereby the information indicating the presence of the print data is not at all displayed in the TV monitor of the observer

having no the printer connection, who therefore need  
not look at the annoying display indicating the  
presence of the print data, and the user without the  
printer connection is relieved from an unpleasant  
5 feeling caused by rather irrelevant image displays.  
[0061]

In this manner, the present invention inhibits,  
on a TV monitor of a user having no a printer, a  
printing-related image display which is irrelevant to  
10 such user, thereby relieving the user from an  
unpleasant feeling caused by frequent irrelevant  
image displays. Besides, since such process can be  
executed at the TV system of the user, it is  
unnecessary for the TV broadcast wave source side to  
15 execute a cumbersome process such as recognizing the  
system status (presence/absence of printer etc.) of  
the user and preparing and transmitting a  
corresponding content of broadcasting.

[Brief Description of the Drawings]

20 [Fig. 1]

A view of a system configuration for explaining  
a first embodiment of the present invention.

[Fig. 2]

A view showing an example of print-related data  
25 to be used in the embodiment of the present invention,  
described in a format based on HTML.

[Fig. 3]

A view showing an example of an image displayed on a TV monitor in an embodiment of the present invention.

[Fig. 4]

5        A flow chart showing a process sequence of a first embodiment of the present invention.

[Fig. 5]

A view of a system configuration for explaining a second embodiment of the present invention.

10    [Fig. 6]

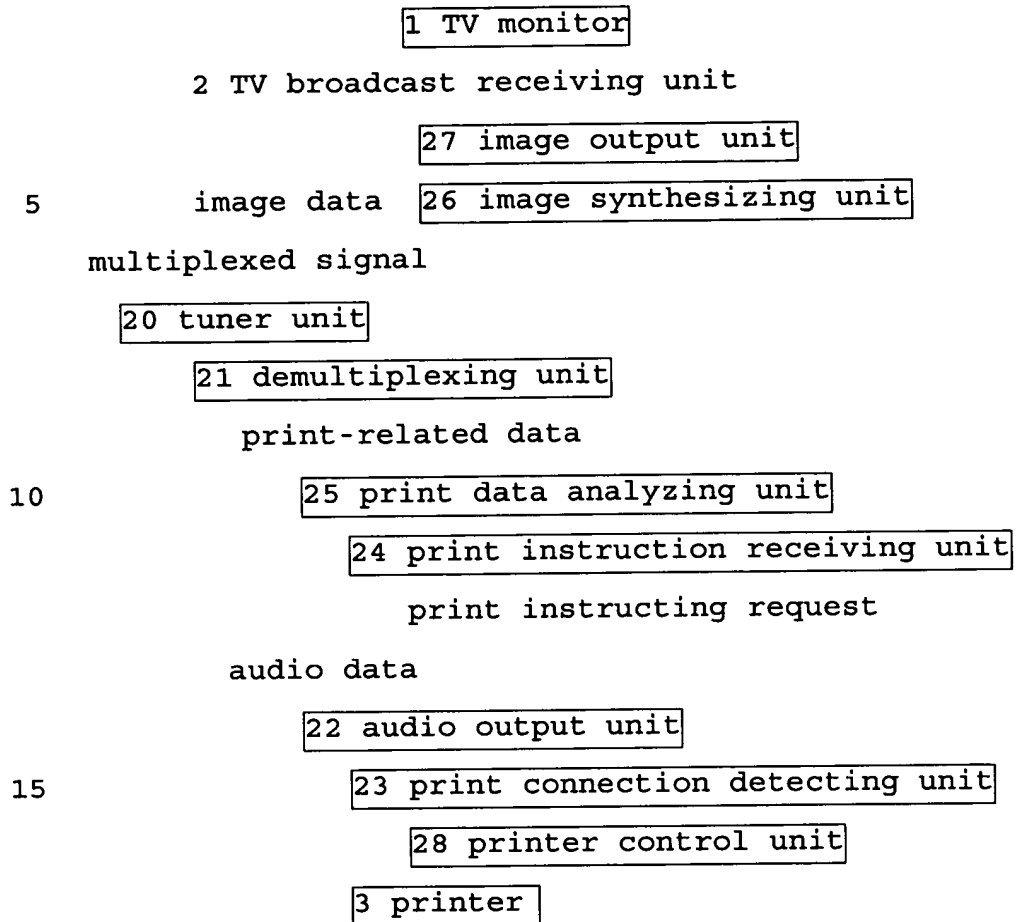
A flow chart showing a process sequence of a second embodiment of the present invention.

[Description of Symbols]

- 1        TV monitor
- 15    2        TV broadcast receiving unit
- 3        printer
- 20       tuner unit
- 21       demultiplexing unit
- 22       audio output unit
- 20    23       printer connection detecting unit
- 24, 32   print instruction receiving unit
- 25, 33   print data analyzing unit
- 26, 34   image synthesizing unit
- 27, 35   image output unit
- 25    28       printer control unit
- 30       image data input unit
- 31       print data input unit

- 36    print process unit
- 37    sheet feeding tray
- 38    sheet discharge tray

[Fig. 1]

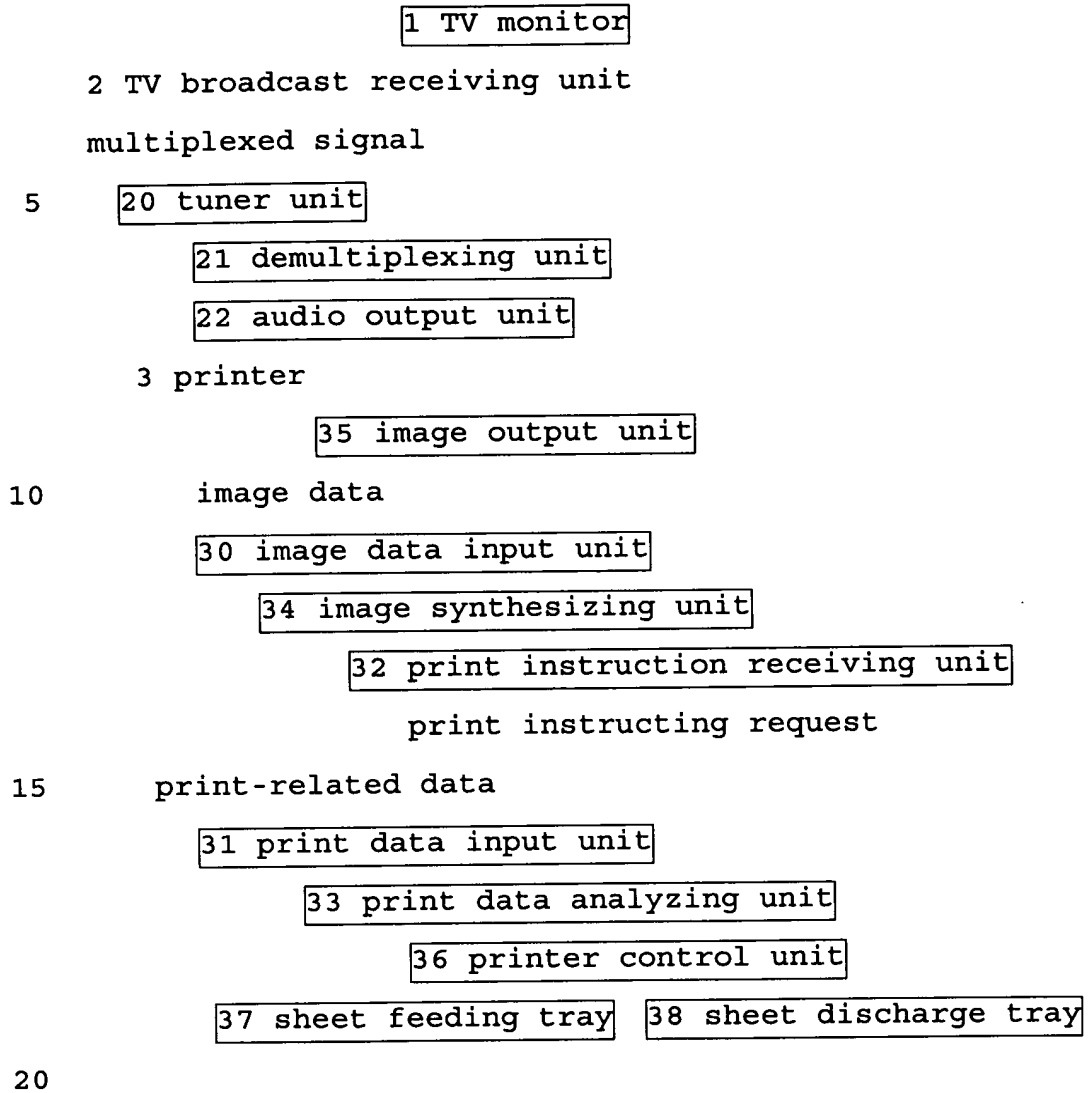


[Fig. 2]

(print-related data)

20 [Fig. 3]

[Fig. 5]





[Fig. 4]

```
START
s1  Tuner unit 20 selects a processed channel
s2  Demultiplexing unit 21 separates image data,
5   audio data and data broadcast
s3  Print data analyzing unit 25 confirms printer
    connection by printer connection detecting unit
    23
s4  Printer connected?
10 s5  Print data analyzing unit 25 analyzes print-
    related data
s6  Print-related data received?
s7  Transfer information indicating presence of
    print-object data transferred to image
15 synthesizing unit 26
s8  Transfer synthesized data to image output unit
    27
s9  Print instructing request from user received?
s10 Print instruction receiving unit 24 issues a
20 print instruction to print data analyzing unit
    25
s11 Print data analyzing unit 25 transfers print
    content to printer control unit 28
s12 Printer control unit 28 sends print data to
25 printer 3
END
```

[Fig. 6]

```
START
s21  Tuner unit 20 selects a processed channel
s22  Demultiplexing unit 21 separates image data,
5    audio data and data broadcast
s23  Print data analyzing unit 33 analyzes print-
    related data
s24  Print-related data received?
s25  Transfer information indicating presence of
10   print-object data transferred to image
    synthesizing unit 34
s26  Transfer synthesized data to image output unit
    35
s27  Print instructing request from user received?
15 s28  Print instruction receiving unit 32 issues a
    print instruction to print data analyzing unit
    33
s29  Print data analyzing unit 33 transfers print-
    object data to print control unit 36
20 s30  Print control unit 37 executes printing
END
```